

1 **CLAIMS**

2 1. A method comprising:
3 receiving input text entered by a user;
4 converting the input text to an output text; and
5 displaying the input text and the output text within a common entry line.

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7 2. A method as recited in claim 1, wherein the input text comprises a
8 phonetic text and the output text comprises a character-based language text.

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10 3. A method as recited in claim 1, wherein the input text comprises
11 Chinese Pinyin and the output text comprises Chinese Hanzi.

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13 4. A method as recited in claim 1, wherein the displaying comprises
14 displaying the input text and the output text together within a common horizontal
15 line.

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17 5. A method as recited in claim 1, wherein the displaying comprises
18 depicting the output text in place of the input text from which the output text was
19 converted.

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21 6. A method as recited in claim 1, further comprising modifying the
22 output text as additional input text is entered.

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1 7. A method as recited in claim 6, further comprising ceasing to further
2 modify the output text as additional input text is entered in response to user entry
3 of punctuation.

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5 8. A method as recited in claim 6, further comprising ceasing to further
6 modify the output text as additional input text is entered in response to user
7 confirmation of the output text.

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9 9. A method as recited in claim 6, further comprising ceasing, in
10 response to user confirmation of the output text, to modify the output text while
11 leaving unconverted input text active for modification.

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13 10. A method as recited in claim 1, further comprising selectively
14 modifying the output text as additional input text is entered such that no
15 modification is made if such modification results in only a minor improvement.

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17 11. A method as recited in claim 1, further comprising enabling a user
18 to edit the output text within the common entry line without switching from an
19 entry mode to an edit mode.

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21 12. A method as recited in claim 1, further comprising, in response to
22 user selection of output text for editing, depicting an edit window adjacent to the
23 selected output text in the entry line.

1 13. A method as recited in claim 12, wherein the entry line is oriented in
2 a first direction and further comprising orienting the edit window in a second
3 direction orthogonal to the first direction.

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5 14. A method as recited in claim 1, further comprising, in response to
6 user selection of output text for editing, depicting an input text hint window
7 adjacent to the selected output text in the entry line, the input text hint window
8 containing the input text from which the selected output text was converted.

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10 15. A method as recited in claim 1, further comprising, in response to
11 user selection of output text for editing, depicting a first candidate list adjacent to
12 the selected output text in the entry line, the first candidate list containing one or
13 more alternate output text candidates that may be substituted for the selected
14 output text.

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16 16. A method as recited in claim 15, further comprising ordering the
17 output text candidates within the first candidate list according to a ranking.

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19 17. A method as recited in claim 15, wherein the first candidate list is
20 scrollable, and further comprising animating movement of the output text
21 candidates as the list is scrolled.

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1 18. A method as recited in claim 15, further comprising depicting a
2 second candidate list containing a complete set of output text candidates than the
3 first candidate list.

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5 19. A method as recited in claim 18, further comprising arranging the
6 output text candidates in the second candidate list according to complexity of
7 character construction.

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9 20. A method as recited in claim 18, further comprising:
10 ordering the output text candidates in the first candidate list according to a
11 first metric; and

12 arranging the output text candidates in the second candidate list according
13 to a second metric different than the first metric.

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15 21. A method as recited in claim 1, wherein the entry line is oriented in
16 a first direction, and further comprising, in response to user selection of output text
17 for editing:

18 depicting an input text hint window above the selected output text in a
19 second direction orthogonal to the first direction, the input text hint window
20 containing the input text from which the selected output text was converted; and

21 depicting a first candidate window below the selected output text in the
22 second direction, the first candidate window containing one or more alternate
23 output text candidates that may be substituted for the selected output text.

1 **22.** A method as recited in claim 1, wherein the input text comprises
2 phonetic and non-phonetic text, further comprising:

3 converting the phonetic text to language text; and
4 displaying the language text, the non-phonetic text, and newly entered
5 phonetic text within the common entry line.

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7 **23.** A method as recited in claim 1, further comprising enabling a user
8 to enter input text containing at least two languages without switching from a first
9 entry mode for a first language and a second entry mode for a second language.

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11 **24.** A method as recited in claim 1, wherein the input text comprises
12 individual input characters, further comprising converting at least one of the input
13 characters to the output text when at least one input character is displayed and at
14 most six input characters are displayed.

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16 **25.** A method as recited in claim 1, wherein the input text comprises
17 individual input characters, further comprising:
18 evaluating at least two conversion candidates for matching characters; and
19 if at least one character from both conversion candidates match, converting
20 at least one input character to the matching character.

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22 **26.** A method as recited in claim 1, wherein the input text comprises
23 individual input characters, further comprising always displaying a most recently
24 entered input character.

1 **27.** A method as recited in claim 1, wherein the input text comprises
2 individual input characters, further comprising converting at least one input
3 character to the output text of a first most likely conversion candidate if the first
4 most likely conversion candidate scores significantly higher than a second most
5 likely conversion candidate.

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7 **28.** One or more computer-readable media having computer-executable
8 instructions that, when executed on a processor, direct a computer to perform the
9 method as recited in claim 1.

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11 **29.** A method comprising:
12 displaying phonetic text as a user enters the phonetic text; and
13 displaying language text upon conversion from the phonetic text, the
14 language text being presented in place of the phonetic text from which the
15 language text is converted so that the language text and any unconverted phonetic
16 text are displayed together.

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18 **30.** A method as recited in claim 29, wherein the phonetic text
19 comprises a Chinese Pinyin and the language text comprises a Chinese Hanzi.

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21 **31.** A method as recited in claim 29, further comprising displaying the
22 unconverted phonetic text and the language text together within a common
23 horizontal line.

1 **32.** A method as recited in claim 29, further comprising modifying the
2 language text as additional phonetic text is entered.

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4 **33.** A method as recited in claim 32, further comprising ceasing to
5 further modify the language text as additional phonetic text is entered in response
6 to user entry of punctuation.

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8 **34.** A method as recited in claim 32, further comprising ceasing to
9 further modify the language text as additional phonetic text is entered in response
10 to user confirmation of the language text.

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12 **35.** A method as recited in claim 32, further comprising ceasing, in
13 response to user confirmation of the language text, to modify the language text
14 while leaving unconverted phonetic text active for modification.

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16 **36.** A method as recited in claim 29, further comprising modifying the
17 language text to second language text as additional phonetic text is entered if the
18 second language text is significantly more likely to have been intended.

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20 **37.** A method as recited in claim 29, further comprising enabling a user
21 to edit the language text without switching from an entry mode to an edit mode.

1 **38.** A method as recited in claim 29, further comprising, in response to
2 user selection of language text for editing, displaying an edit window adjacent to
3 the selected language text.

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5 **39.** A method as recited in claim 29, further comprising, in response to
6 user selection of language text for editing:

7 displaying a phonetic text hint proximal to the selected language text, the
8 phonetic text hint containing the phonetic text from which the selected language
9 text was converted; and

10 displaying a reduced-set candidate list proximal to the selected language
11 text, the candidate list containing a reduced set of one or more alternate language
12 text candidates that may be substituted for the selected language text.

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14 **40.** A method as recited in claim 39, further comprising ordering the
15 language text candidates within the candidate list according to a ranking.

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17 **41.** A method as recited in claim 39, wherein the candidate list is
18 scrollable, and further comprising animating movement of the language text
19 candidates as the list is scrolled.

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21 **42.** A method as recited in claim 39, further comprising displaying a
22 full-set candidate list containing a complete set of language text candidates than
23 the reduced-set candidate list.

1 **43.** A method as recited in claim 42, further comprising arranging the
2 language text candidates in the full-set candidate list according to complexity of
3 character construction.

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5 **44.** A method as recited in claim 42, further comprising:
6 ordering the language text candidates in the reduced-set candidate list
7 according to a first metric; and
8 arranging the language text candidates in the full-set candidate list
9 according to a second metric different than the first metric.

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11 **45.** A method as recited in claim 29, wherein the phonetic text
12 comprises individual characters, further comprising converting at least one of the
13 phonetic characters to the language text when at least one phonetic character is
14 displayed and at most six phonetic characters are displayed.

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16 **46.** One or more computer-readable media having computer-executable
17 instructions that, when executed on a processor, direct a computer to perform the
18 method as recited in claim 29.

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20 **47.** A method comprising:
21 presenting a user interface to receive phonetic text and non-phonetic text
22 entered by a user;
23 converting the phonetic text to a language text; and
24 displaying together the language text, the non-phonetic text, and
25 unconverted phonetic text.

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2 **48.** A method as recited in claim 47, further comprising displaying the
3 language text, the non-phonetic text, and the unconverted phonetic text in-line
4 within a common horizontal line.

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6 **49.** A method as recited in claim 47, further comprising displaying the
7 non-phonetic text differently than the unconverted phonetic text so that the non-
8 phonetic text appears differently than the unconverted phonetic text.

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10 **50.** A method as recited in claim 47, further comprising displaying the
11 non-phonetic text in a first font and the unconverted phonetic text in a second font
12 different from the first font.

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14 **51.** A method as recited in claim 47, further comprising displaying the
15 non-phonetic text in a first color and the unconverted phonetic text in a second
16 color different from the first color.

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18 **52.** One or more computer-readable media having computer-executable
19 instructions that, when executed on a processor, direct a computer to perform the
20 method as recited in claim 47.

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22 **53.** A language input user interface comprising:
23 a line-based entry area;
24 an input text displayed within the line-based entry area; and

1 an output text, converted from the input text, displayed together with
2 unconverted input text within the line-based entry area.

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4 **54.** A language input user interface as recited in claim 53, wherein the
5 input text comprises a phonetic text and the output text comprises a character-
6 based language text.

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8 **55.** A language input user interface as recited in claim 53, wherein the
9 input text comprises Chinese Pinyin and the output text comprises Chinese Hanzi.

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11 **56.** A language input user interface as recited in claim 53, wherein the
12 line-based entry area is oriented horizontally.

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14 **57.** A language input user interface as recited in claim 53, wherein the
15 output text replaces the input text from which the output text was converted.

16
17 **58.** A language input user interface as recited in claim 53, wherein the
18 output text is further modified as additional input text is entered.

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20 **59.** A language input user interface as recited in claim 53, wherein the
21 output text is rendered fixed in response to user entry of punctuation.

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23 **60.** A language input user interface as recited in claim 53, wherein the
24 output text is rendered fixed in response to user confirmation of the output text.

1 **61.** A language input user interface as recited in claim 53, further
2 comprising editing means for editing the output text within the line-based entry
3 area without switching from an entry mode to an edit mode.

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5 **62.** A language input user interface as recited in claim 53, further
6 comprising an edit window, invokable by a user, positioned adjacent to particular
7 output text to be edited.

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9 **63.** A language input user interface as recited in claim 53, wherein the
10 line-based entry area is oriented in a first direction and further comprising an edit
11 window positioned adjacent to the line-based entry area and oriented in a second
12 direction orthogonal to the first direction.

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14 **64.** A language input user interface as recited in claim 53, further
15 comprising an input text hint, invokable by a user, positioned adjacent to line-
16 based entry area near selected output text to be edited, the input text hint window
17 containing the input text from which the selected output text was converted.

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19 **65.** A language input user interface as recited in claim 53, further
20 comprising a candidate list, invokable by a user, positioned adjacent to line-based
21 entry area near selected output text to be edited, the candidate list containing one
22 or more alternate output text candidates that may be substituted for the selected
23 output text.

1 **66.** A language input user interface as recited in claim 65, wherein the
2 output text candidates are ordered within the candidate list according to a ranking.

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4 **67.** A language input user interface as recited in claim 65, wherein the
5 candidate list is scrollable and the output candidates are animated during scrolling.

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7 **68.** A language input user interface as recited in claim 53, further
8 comprising:

9 first and second candidate lists invokable by a user;
10 the first candidate list containing one or more alternate output text
11 candidates that may be substituted for the selected output text; and

12 the second candidate list containing a complete set of output text candidates
13 than the first candidate list.

14
15 **69.** A language input user interface as recited in claim 68, wherein the
16 output text candidates in the second candidate list are arranged according to
17 complexity of character construction.

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19 **70.** A language input user interface as recited in claim 68, wherein the
20 output text candidates are ordered within the first candidate list according to a first
21 metric and the output text candidates are arranged in the second candidate list
22 according to a second metric different than the first metric.

1 **71.** A language input user interface as recited in claim 53, wherein the
2 line-based entry area is oriented in a first direction, and further comprising:
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4 an input text hint positioned above the line-based entry area near selected
5 output text to be edited and oriented in a second direction orthogonal to the first
6 direction, the input text hint containing the input text from which the selected
7 output text was converted; and

8 a candidate list positioned below the line-based entry area near the selected
9 output text to be edited, the candidate list containing one or more alternate output
10 text candidates that may be substituted for the selected output text.

11 **72.** A language input user interface as recited in claim 53, wherein the
12 input text contains phonetic and non-phonetic text and the output text, phonetic
13 input text and non-phonetic input text are displayed together within the line-based
14 entry area.

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16 **73.** A word processor comprising the language input user interface as
17 recited in claim 53.

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19 **74.** A language input architecture comprising:
20 a user interface to enable a user to enter an input text;
21 a language conversion unit to convert the input text to an output text; and
22 the user interface being configured to display the converted output text in-
23 line with unconverted input text.

1 **75.** A language input architecture as recited in claim 74, wherein the
2 input text comprises a phonetic text and the output text comprises a character-
3 based language text.

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5 **76.** A language input architecture as recited in claim 74, wherein the
6 input text comprises Chinese Pinyin and the output text comprises Chinese Hanzi.

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8 **77.** A language input architecture as recited in claim 74, wherein the
9 user interface presents the output text and unconverted input text within a common
10 horizontal line.

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12 **78.** A language input architecture as recited in claim 74, wherein the
13 language conversion unit continues to modify the output text as additional input
14 text is entered, the user interface changing the output text as the output text is
15 modified.

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17 **79.** A language input architecture as recited in claim 74, wherein the
18 user interface enables a user to edit the output text without switching from an entry
19 mode to an edit mode.

1 **80.** A language input architecture as recited in claim 74, wherein the
2 user interface presents the output text and unconverted input text within a common
3 line oriented in a first direction and further presents an edit window near selected
4 output text to be edited, the edit window being oriented in a second direction
5 orthogonal to the first direction.

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7 **81.** A language input architecture as recited in claim 74, wherein the
8 user interface presents an input text hint containing the input text from which the
9 selected output text was converted.

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11 **82.** A language input architecture as recited in claim 74, wherein the
12 user interface presents a candidate list containing one or more alternate output text
13 candidates that may be substituted for the selected output text.

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15 **83.** A language input architecture as recited in claim 74, wherein the
16 user interface presents first and second candidate lists, the first candidate list
17 containing one or more alternate output text candidates that may be substituted for
18 the selected output text and the second candidate list containing a complete set of
19 output text candidates than the first candidate list.

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21 **84.** A language input architecture as recited in claim 74, wherein the
22 input text contains phonetic and non-phonetic text, further comprising:

23 the language conversion unit is configured to convert the phonetic text to
24 language text while leaving the non-phonetic text unconverted; and

1 the user interface is configured to display the language text, unconverted
2 phonetic text, and the non-phonetic text in-line with one another.

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4 **85.** A word processor comprising the language input architecture as
5 recited in claim 74.,

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7 **86.** A language input architecture comprising:
8 a typing model to receive an input string written in a phonetic text and
9 determine a typing error probability of how likely a candidate string was
10 incorrectly entered as the input string;

11 a language model to determine a language text probability of how likely a
12 string written in a language text represents the candidate string;
13 a search engine to selectively convert the input string of phonetic text to the
14 string of language text based on the typing error probability and the language text
15 probability; and

16 a user interface to display the phonetic text and the language text within a
17 common line.

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19 **87.** One or more computer-readable media having computer-executable
20 instructions that, when executed on a processor, direct a computer to:

21 receive an input string of phonetic text;
22 convert the input string of phonetic text to an output string of language text;
23 and
24 display the language text and unconverted phonetic text in-line together
25 within a line-based entry area.

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2 **88.** One or more computer-readable media having computer-executable
3 instructions that, when executed on a processor, direct a computer to:
4 receive an input string of phonetic text and non-phonetic text;
5 convert the phonetic text to language text; and
6 display the language text, non-phonetic text, and unconverted phonetic text
7 in-line together within a line-based entry area.

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